Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

even a good presentation of Weierstrass's derivativeless continuous function, of Peano's space-filling curve, and of Moore's "crinkly curve."

Constant use is made of the applications of mathematics. Thus, in Part I the introductory topics, the graph and the formula, are employed in connection with problems from mensuration, commercial arithmetic, physics, engineering, botany, and astronomy. Navigation is begun as a simple illustration of the use of the trigonometric functions (problems in parallel sailing, pages 118, 119) and is continued and elaborated in Part II, pages 105–142. In the latter place we find Sanson's, Lambert's, and Mercator's projections explained and applied in numerous problems; further, great circle sailing, the construction and use of gnomonic projections, and the elementary principles of practical astronomy (pages 143–169) are considered. The increasing importance of navigation in our national life suggests the advisability of enriching our mathematics courses, both in secondary school and in college, with much of this material. The subject of annuities and life insurance occupies pages 63–78 of Part II, compound interest having been considered briefly in Part I as an application of geometric progressions. The usually under-valued subject of statistics is given a very satisfactory treatment at the end of Part II (pages 431–514).

The mere mention of these topics is sufficient to show that the author has laid out an ambitious program for the secondary school course; but the original and stimulating manner in which all of the topics are presented tends to remove one's doubts as to the feasibility of carrying the young student into so much of the work which we have usually placed much later in the mathematics course. At any rate, we have in Dr. Nunn's work a valuable contribution to a most important problem, and one that can not fail to be suggestive and stimulating to any teacher of mathematics. The three volumes should find a place in every high school and college library.

R. B. McClenon.

Interpolation Tables, or Multiplication Tables of Decimal Fractions, giving the product to the nearest unit of all numbers from 1 to 100 by 0.01 to 0.99 and from 1 to 1,000 by 0.001 to 0.999. By Henry B. Hedrick. Carnegie Institution of Washington. Washington, 1918. 9 + 139 pp. Folio. Price $5.00.

Until about the beginning of the eighteenth century the multiplication of one number by another must have been considered a serious undertaking. In the old arithmetics very simple examples of the processes are given with as painful detail as is now given to an example in the extraction of the cube root. Napier's "bones" were hailed as a wonderful invention and yet they are of little use to one who knows his multiplication table as far as the nines. As late as 1841 an immense and complicated table was published by Bretschneider giving the product of all numbers up to 100,000 by 2, 3, 4, 5, 6, 7, 8 and 9. Nevertheless, as early as 1610 a table giving the product of any two numbers less than 1,000 was published by Herwart von Hohenburg in an immense folio volume of over a thousand pages.

In 1864 Crelle published a table which is still an indispensable part of every computer's library.[1] It gives in about five hundred pages the product of any two numbers less than 1,000 and may easily be used to multiply any two numbers together. It is also conveniently used as a division table.

The tables prepared by Dr. H. B. Hedrick and published by the Carnegie Institution of Washington are intended to cover the same range of numbers as Crelle's tables using 139 pages instead of 500. The abridgment is obtained by giving only three significant figures in the product, which for many purposes is sufficient. The arrangement of the table is also new in that while one factor is listed at the top of the page the other is found in the body of the table, the product being listed at the side of the page. Only a few numbers are necessary to list in the body of the table, since if only the first three significant figures are desired the products of .293, for example, by 279, 280 and 281 are identical. Only the smallest, 279, is listed. This effects a considerable saving of space.

The reviewer is not convinced that the smallness of the table is a sufficient advantage over Crelle's table to offset the manifest disadvantages. In order to test the matter he made a list of one hundred products of three digits by three digits. He first found the products "by hand" using his own method of cross-multiplication by which the product is obtained from the left. (See *Science*, July 11, 1902.) The products were then found from Dr. Hedrick's table, then from Crelle's table, and finally by means of the Monroe Calculating Machine. The results were as follows:

By hand	28 minutes.
By Hedrick's table	32 minutes.
By Crelle's table	29 minutes.
By Monroe machine	26 minutes.

The reviewer has not had any practice with Crelle's table for many years, and was so unused to it that he had to read the directions for using it. He has had, quite recently, considerable practice in using the calculating machine, so that probably he would be a little faster than the average engineer in using it. The comparison with Crelle's table is interesting as bearing out what the reviewer has always maintained, that is, that if one has to turn over pages it is as easy and convenient to turn over five hundred pages as one hundred, and that there is no appreciable saving in time in using a four place table of logarithms instead of a six place table, and when interpolations are necessary there is a distinct loss of time and accuracy in using the smaller table.

D. N. LEHMER.

A Treatise on Differential Equations. By A. R. FORSYTH. Fourth edition. London, Macmillan, 1914. 8vo, 584 pp. Price 17 shillings.

Solutions of the Examples in a Treatise on Differential Equations. By A. R. FORSYTH. London, Macmillan, 1918. 8vo, 249 pp. Price 10 shillings.

Early in the eighties Macmillan and Company consulted Forsyth with regard to the preparation of a new edition of Boole's *Treatise on Differential Equations*, a work which had already

---

[1] Other multiplication tables are described on page 327 of J. W. L. Glaisher's article, "Table, Mathematical," in the eleventh edition of the *Encyclopædia Britannica*—EDITOR.